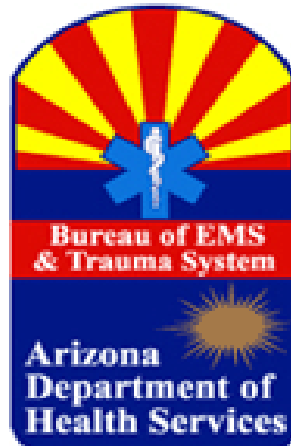


ARIZONA DEPARTMENT OF HEALTH SERVICES
BUREAU OF EMERGENCY MEDICAL SERVICES AND TRAUMA SYSTEM



JUNE 2013
PIMA COUNTY REPORT
ASTR 2011

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Data and Quality Assurance

Purpose:

The purpose of this report is to describe the incidence of trauma in Pima County using the Arizona State Trauma Registry (ASTR). This information can be used to assist in the development and strengthening of injury prevention programs at the county level.

Methods:

In 2011, the Arizona State Trauma Registry (ASTR) received data from 23 state-designated trauma centers. Four additional healthcare institutions participated in the registry but were not designated. The Arizona EMS and Trauma System has eight Level I trauma centers - six located in the central county of Maricopa with 60 percent of the state's population; the remaining two Level I trauma centers are respectively located in the northern-most county of Coconino and the southern county of Pima. For the 2011 reporting year, there were 15 designated Level IV trauma centers dispersed primarily in the rural areas of the state. There are a total of 29,877 records in the ASTR for 2011.

Limitations:

Data is limited to participating agencies in the state. Information on patients that are transported out of Arizona will be missed as well as those seen at hospitals that are not participating. Injuries included in this registry are those which fit the [ASTR inclusion criteria](#). As such, injuries reported are more severe injuries, and therefore not a complete picture of injury in Pima County.

Geo-Population:

Arizona is 400 miles long and 310 miles wide for a total area of 114,006 square miles. The topography of the state is 364 square miles of water and a blend of deserts, mountains, and plateaus. Arizona shares contiguous borders with the states of California, Colorado, Nevada, New Mexico, and Utah. Internationally, the Mexican states of Sonora, Chihuahua, and Baja California Norte share a border with Arizona.

The total reported population in 2011 was 6,438,178; this was up from the 2010 reported number of 6,392,017 residents ¹. In 2011, 84.1 percent of the population lived in urban counties (Maricopa, Pima, Pinal, and Yuma). The remaining counties (Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Mohave, Navajo, Santa Cruz, and Yavapai) were home to 15.9 percent of the population.

Additionally, Arizona has within its borders twenty-two (22) federally recognized American Indian tribes, comprising a 2011 collective population of 296,529, of which 162,119 (55 percent) reside on reservations and tribal lands.

¹ <http://www.azdhs.gov/plan/menu/info/pop/pop11/pd11.htm>

Arizona State Designated Trauma Centers

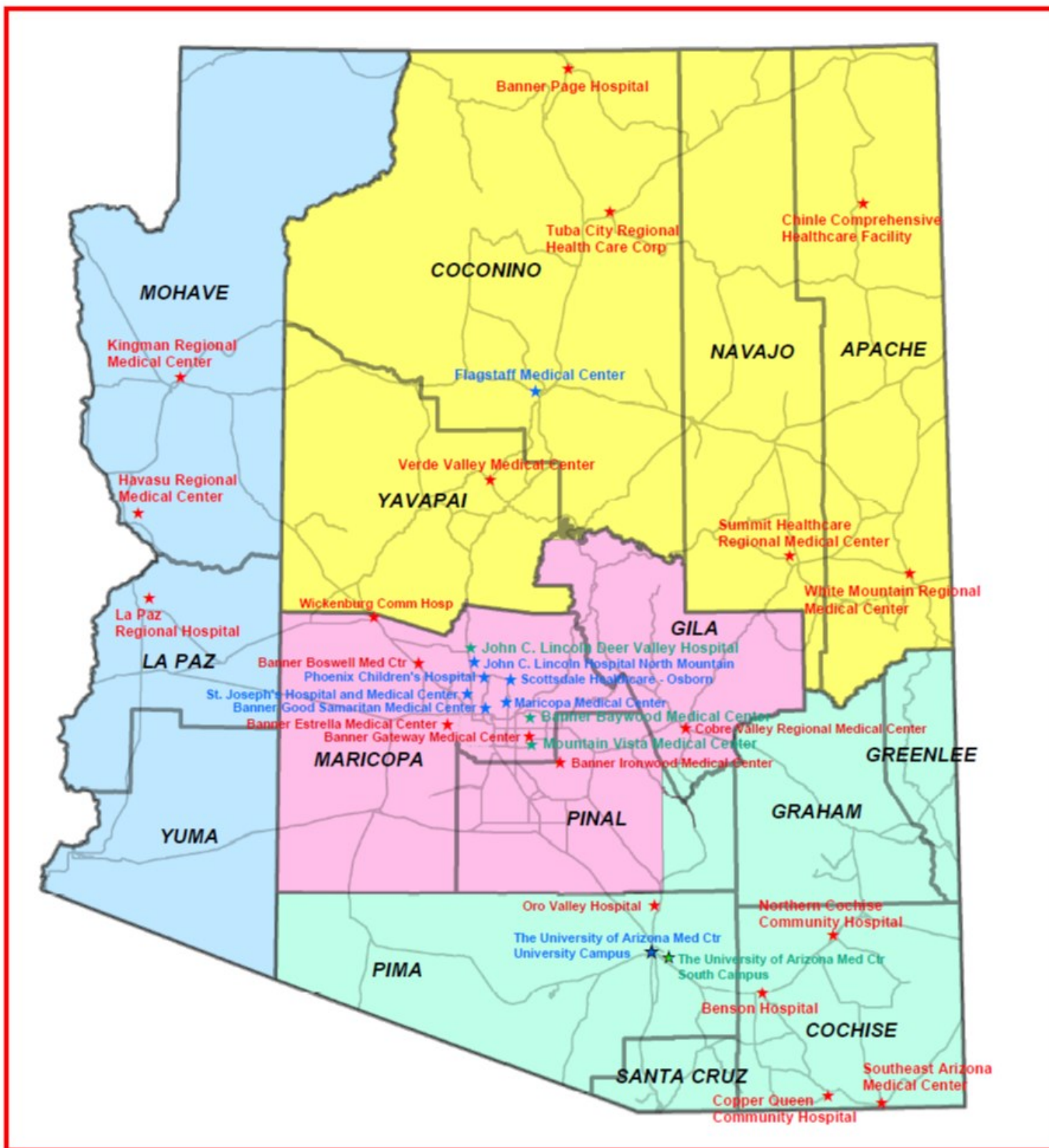
Health Care Institution	Address	Effective Date	Expiration Date
Level I Trauma Centers			
Banner Good Samaritan Medical Center	925 E. McDowell Rd., Phoenix, AZ 85006	11/19/11	11/19/14
Flagstaff Medical Center	1200 N. Beaver St., Flagstaff, AZ 86001	05/27/11	05/27/14
John C. Lincoln - North Mountain	250 E. Dunlap Ave., Phoenix, AZ 85020	04/23/11	04/23/14
Maricopa Medical Center	2601 E. Roosevelt, Phoenix, AZ 85008	12/20/11	12/20/14
Phoenix Children's Hospital	1919 E. Thomas Rd., Phoenix, AZ 85016	08/31/12	08/31/15
St. Joseph's Hospital & Medical Center	350 W. Thomas Rd., Phoenix, AZ 85013	11/20/10	11/20/13
Scottsdale Healthcare – Osborn	7400 E. Osborn, Scottsdale, AZ 85251	10/25/11	10/25/14
The University of Arizona Medical Center – University Campus	1501 N. Campbell Ave., Tucson, AZ 85724	11/12/11	11/12/14
Level III Trauma Centers			
Banner Baywood Medical Center (Provisional Designation)	6644 E. Baywood Ave., Mesa, AZ 85206	07/30/12	01/30/14
John C. Lincoln Deer Valley Hospital (Provisional Designation)	19829 N. 27 th Ave., Phoenix, AZ 85027	02/04/13	10/04/14
Mountain Vista Medical Center (Provisional Designation)	1301 S. Crismon Rd., Mesa, AZ 85209	02/24/12	08/24/13
The University of Arizona Medical Center South Campus (Provisional Designation)	2800 E. Ajo Way, Tucson, AZ 85713	02/13/12	08/13/13
Level IV Trauma Centers			
Banner Boswell Medical Center	10401 W. Thunderbird Blvd., Sun City, AZ 85351	12/17/12	12/17/15
Banner Estrella Medical Center	9201 W. Thomas Road, Phoenix, AZ 85037	08/30/12	08/30/15
Banner Gateway Medical Center	1900 N. Higley Road, Gilbert, AZ 85234	01/02/13	01/02/16
Banner Ironwood Medical Center	37000 N. Gantzel Rd., San Tan Valley, AZ 85140	10/11/12	10/11/15
Banner Page Hospital	501 N. Navajo, Page, AZ 86040	11/05/11	11/05/14
Benson Hospital	450 S. Ocotillo Ave., Benson, AZ 85602	03/03/11	03/03/14
Chinle Comprehensive Health Care Facility	P.O. Drawer PH, Chinle, AZ 86503	09/09/10	09/09/13
Cobre Valley Regional Medical Center	5880 S. Hospital Dr., Globe, AZ 85501	11/26/12	11/26/15
Copper Queen Community Hospital	101 Cole Ave., Bisbee, AZ 85603	12/01/12	12/01/15
Havasupai Regional Medical Center	101 Civic Center Ln., Lake Havasu City, AZ 86403	01/20/11	01/20/14
Kingman Regional Medical Center	3269 Stockton Hill Rd., Kingman, AZ 86409	10/15/12	10/15/15
La Paz Regional Hospital	1200 W. Mohave Rd., Parker, AZ 85344	06/02/12	06/02/15

Health Care Institution	Address	Effective Date	Expiration Date
Northern Cochise Community Hospital	901 W. Rex Allen Dr., Willcox, AZ 85643	12/04/11	12/04/14
Oro Valley Hospital	1551 East Tangerine Road, Oro Valley, AZ 85755	4/18/13	4/18/16
Southeast Arizona Medical Center	2174 W. Oak Ave., Douglas, AZ 85607	08/18/11	08/18/14
Summit Healthcare Regional Medical Center	2200 Show Low Lake Rd., Show Low, AZ 85901	08/12/11	08/12/14
Tuba City Regional Health Care Corp.	P.O. Box 600, Tuba City, AZ 86045	05/06/12	05/06/15
Verde Valley Medical Center	269 S. Candy Ln., Cottonwood, AZ 86326	08/18/11	08/18/14
White Mountain Regional Medical Center	118 S. Mountain Ave., Springerville, AZ 85938	06/18/12	06/18/15
Wickenburg Community Hospital	520 Rose Ln., Wickenburg, AZ 85390	08/08/11	08/08/14

Updated as of May 1, 2013

EMS REGIONS AND TRAUMA CENTERS

May 1, 2013



Level I Trauma Center

Level III Trauma Center (Provisional)

Level IV Trauma Center

FIGURE 1: Pima County population by age, gender, and race/ethnicity, AZ Health & Vital Statistics

Group		Count	Percent
Age	<1	12,197	1.24%
	1-4	50,694	5.14%
	5-9	62,141	6.30%
	10-14	62,498	6.34%
	15-19	71,762	7.28%
	20-24	75,782	7.69%
	25-29	66,620	6.76%
	30-34	60,342	6.12%
	35-39	58,831	5.97%
	40-44	57,646	5.85%
	45-49	64,897	6.58%
	50-54	67,411	6.84%
	55-59	64,294	6.52%
	60-64	58,799	5.96%
	65-69	46,685	4.73%
	70-74	35,580	3.61%
	75-79	28,187	2.86%
	80-84	21,702	2.20%
	85+	20,013	2.03%
Gender	Female	501,814	50.89%
	Male	484,267	49.11%
Race/Ethnicity	Hispanic	321,938	32.65%
	White	554,782	56.26%
	American Indian or Alaska Native	44,474	4.51%
	Black or African American	36,076	3.66%
	Asian Pacific Islander	28,811	2.92%
Total		986,081	100%

FIGURE 2: Trauma frequency and rate per 100,000 by county

County of Injury	Total Population	Percent of Population	Trauma Count	Percent of All Traumas	Trauma Rate per 100,000
Apache	71,991	1.1%	507	1.7%	704
Cochise	130,537	2.0%	1,009	3.4%	773
Coconino	134,162	2.1%	1,383	4.7%	1,031
Gila	53,577	0.8%	506	1.7%	944
Graham	37,710	0.6%	109	0.4%	289
Greenlee	8,380	0.1%	35	0.1%	418
La Paz	20,730	0.3%	203	0.7%	979
Maricopa	3,843,370	59.7%	13,846	47.2%	360
Mohave	200,417	3.1%	1,124	3.8%	561
Navajo	107,226	1.7%	910	3.1%	849
Pima	986,081	15.3%	4,164	14.2%	422
Pinal	384,231	6.0%	1,387	4.7%	361
Santa Cruz	48,088	0.7%	159	0.5%	331
Yavapai	211,247	3.3%	1,029	3.5%	487
Yuma	200,431	3.1%	2,350	8.0%	1,172
Other	.	.	627	2.1%	.
Total	6,438,178	100.0%	29,348	98.2%	456

Missing = 529

Statewide, there were 29,877 traumatic injuries seen at state designated trauma centers– a rate of 456 per 100,000 Arizona residents.

Pima County makes up about fifteen percent of the total population of Arizona. Injuries occurring in the county make up fourteen percent of the trauma cases from state designated trauma centers. The county-specific trauma rate, 422 per 100,000 county residents, is lower than the state average (Figure 3).

FIGURE 3: County-specific trauma rates per 100,000 residents

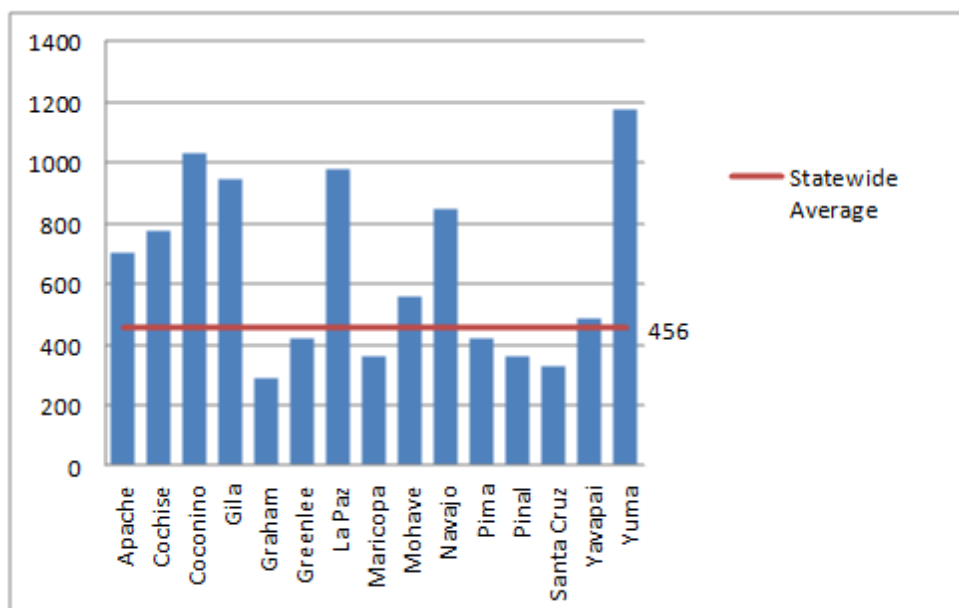


FIGURE 4: Frequency and rate of trauma by age, race/ethnicity, and gender in Pima County

Group		Count	Percent	Rate per 100,000
Age	<1	42	1.0%	344
	1-4	142	3.4%	280
	5-9	114	2.7%	183
	10-14	152	3.7%	243
	15-19	443	10.6%	617
	20-24	516	12.4%	681
	25-34	721	17.3%	568
	35-44	523	12.6%	449
	45-54	545	13.1%	412
	55-64	413	9.9%	336
	65-74	237	5.7%	288
	75-84	191	4.6%	383
	>85	125	3.0%	625
Gender	Female	1,519	36.5%	303
	Male	2,645	63.5%	546
Race	Missing	15	0.4%	.
	Hispanic	1,339	32.2%	241
	White	2,286	54.9%	412
	American Indian or Alaska Native	255	6.1%	573
	Black or African American	160	3.8%	444
	Asian Pacific Islander	44	1.1%	153
	Other	65	1.6%	.
All		4,164	100%	422

The trauma rate is comparable in Pima County to the rest of the state for all age groups (Figure 5). The highest trauma rate in the county is among the 20-24 age group (681 traumatic injuries per 100,000 county residents).

FIGURE 5: Trauma rate per 100,000 residents by age

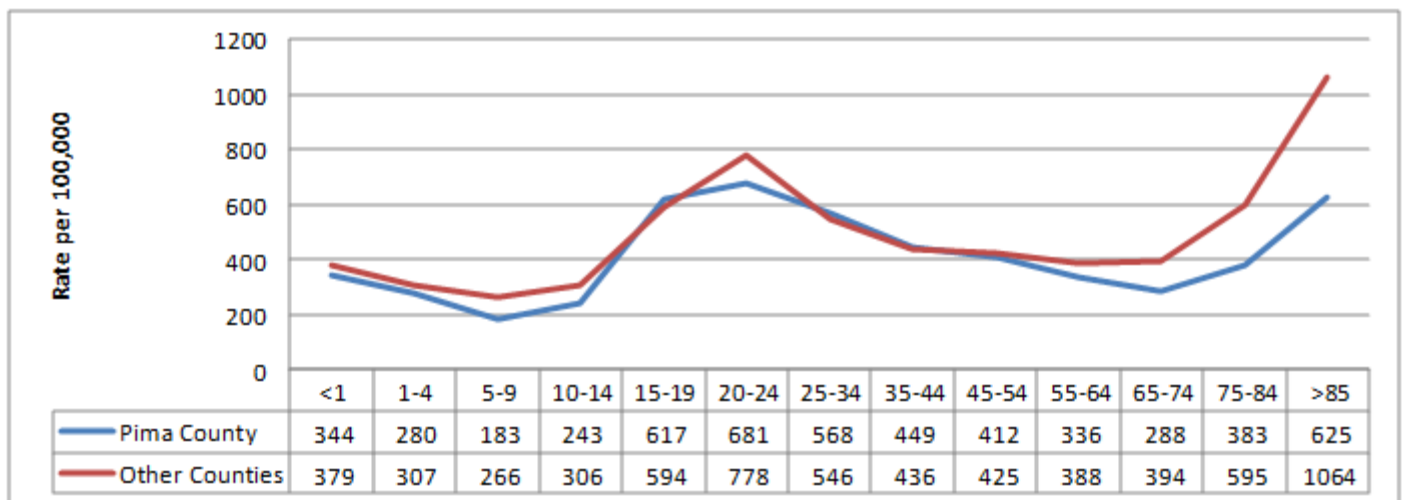
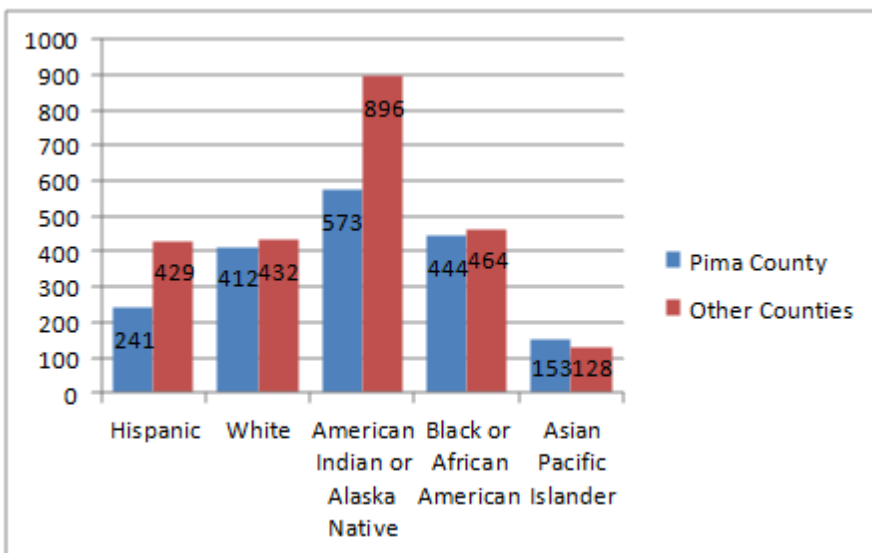


FIGURE 6: Trauma rate per 100,000 residents by gender



Both males and females in Pima County have lower trauma rates than their counterparts in other counties (Figure 6).

FIGURE 7: Trauma rate per 100,000 residents by race/ethnicity



The trauma rate for all race/ethnicities except Asian/Pacific Islander is lower in Pima County than in other counties (Figure 7).

FIGURE 8: Frequency of top causes of trauma in Pima County

Cause	Count	Percent
Motor Vehicle Traffic	1,952	46.9%
Falls	729	17.5%
Transport, other	344	8.3%
Struck by/Against	283	6.8%
Cut/Pierce	229	5.5%
Other Trauma	627	15.1%
Total	4,164	100%

FIGURE 9: Top causes of trauma, rates per 100,000 residents

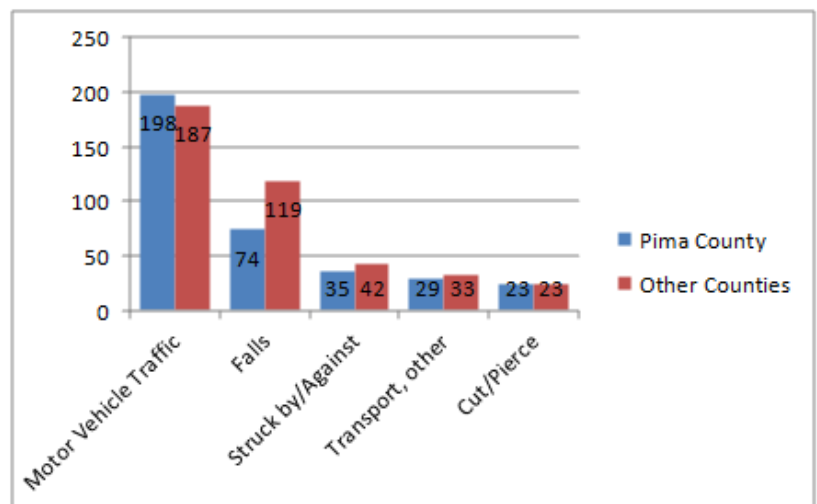
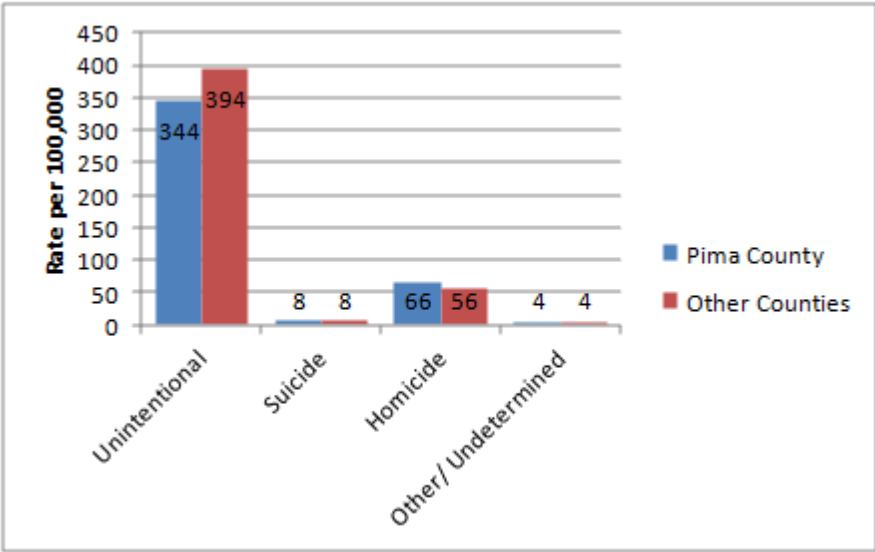


Figure 9 shows the top causes of traumatic injury in Pima County, as compared with other counties (rates per 100,000).

FIGURE 10: Intention of trauma, rate per 100,000 residents



The rate of trauma of homicide intents is higher in Pima County than in other Arizona counties (Figure 10).

Documented alcohol and drug use was present in 20.6% and 12.4% of traumatic injuries in Pima County, respectively (Figure 11).

FIGURE 11: Substance use in traumatic injuries in Pima County

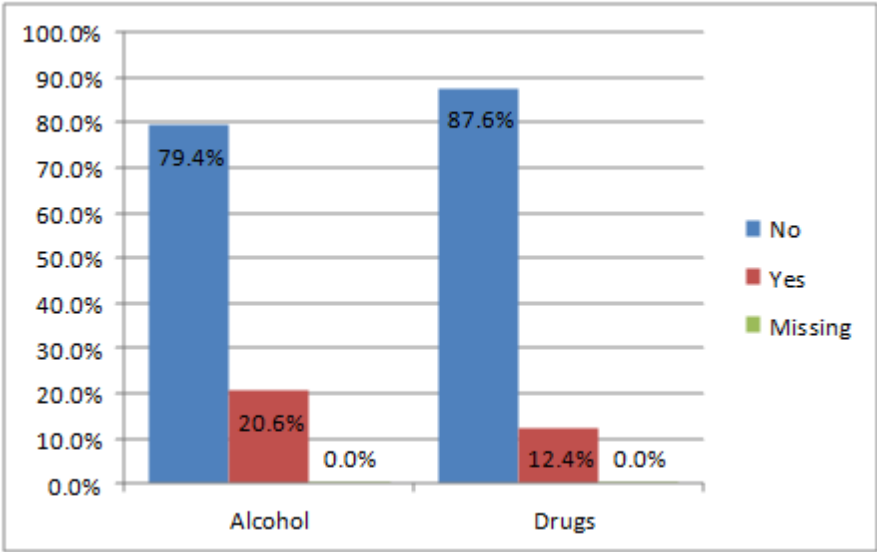


FIGURE 12: Frequency of substance use in traumatic injuries in Pima County

Substance Use		Frequency	Percent
Alcohol	No	3,307	79.4%
	Yes	856	20.6%
	Missing	1	0.0%
	Total	4,164	100%
Drugs	No	3,647	87.6%
	Yes	516	12.4%
	Missing	1	0.0%
	Total	4,164	100%

FIGURE 13: Proportion of ground and air ambulance transports in Pima County

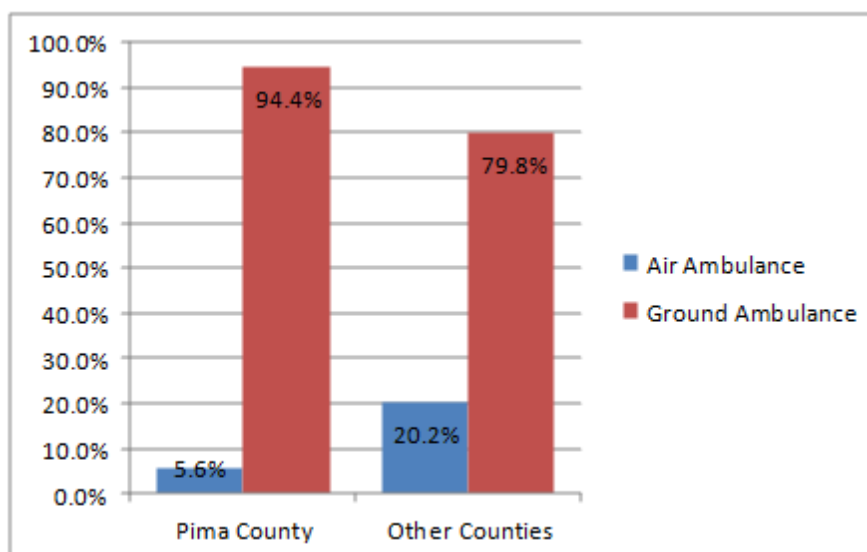


FIGURE 14: Count of ground and air ambulance transports

	Air	Ground	Other	Missing
Pima County	212	3589	361	2
Other Counties	4,361	17,254	3,456	113

FIGURE 15: Golden hour by transport type

The term “golden hour” refers to the hour immediately following traumatic injury. Theoretically, the chance of survival is highest when medical treatment to prevent irreversible internal damage is obtained within this time period.

Due to the large amount of missing data on golden hour, results on the proportion of patients arriving at the hospital within one hour are not conclusive.

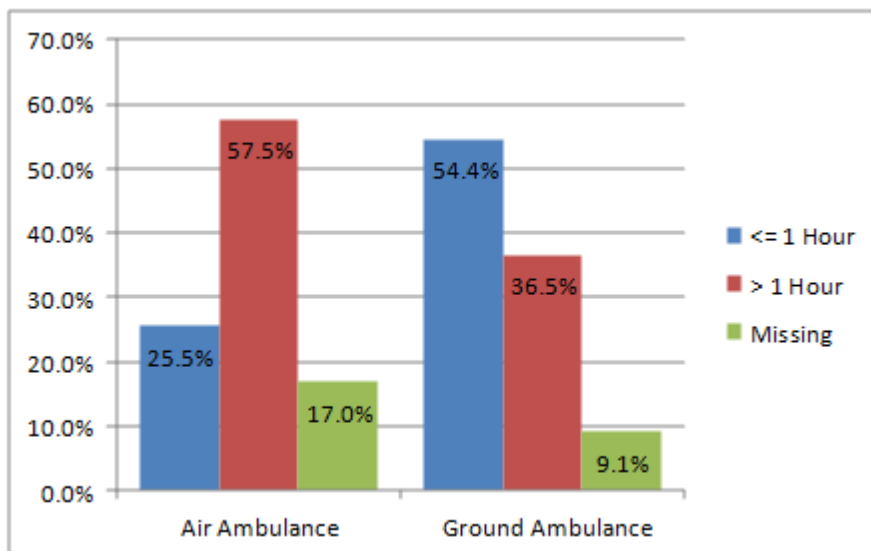


FIGURE 16: Count of golden hour by transport type to trauma center

Golden Hour	Air Ambulance		Ground Ambulance		Total	
	Count	Percent	Count	Percent	Count	Percent
<= 1 Hour	54	25.5%	1,954	54.4%	2,008	52.8%
> 1 Hour	122	57.5%	1,310	36.5%	1,432	37.7%
Missing	36	17.0%	325	9.1%	361	9.5%
Total	212	100%	3,589	100%	3,801	100%

FIGURE 17: Primary payer in Pima County

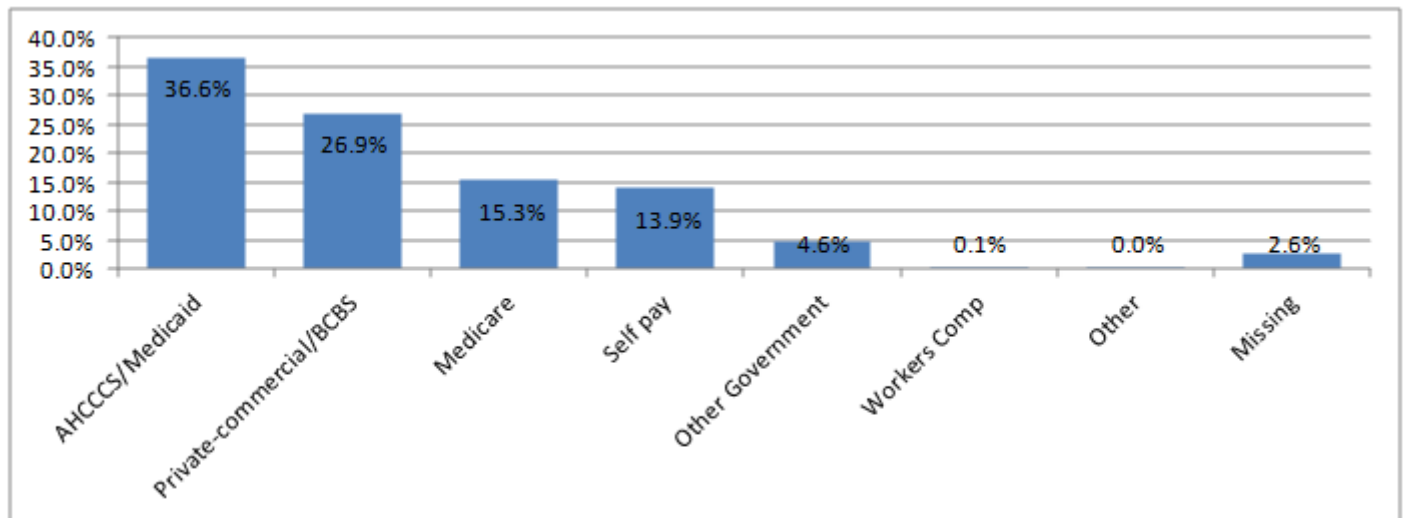


FIGURE 18: Count of primary payer in Pima County

Primary Payer	Frequency	Percent
AHCCCS/Medicaid	1,524	36.6%
Private-commercial/	1,121	26.9%
Medicare	637	15.3%
Self pay	577	13.9%
Other Government	192	4.6%
Workers Comp	3	0.1%
Other	2	0.0%
Missing	108	2.6%

AHCCCS/Medicaid is the primary payment source for trauma-related hospital visits in Pima County (Figures 17 & 18).

The median charge in Pima County in 2011 was \$16,085 (Figure 19).

FIGURE 19: Charges & reimbursement by primary payer in Pima County

Primary Payer	Total Charges	Median Charges	Total Reimbursements
Not documented	\$760,692	\$19,655	\$88,731
Self pay	\$17,513,822	\$14,311	\$449,214
AHCCCS/Medicaid	\$46,298,618	\$15,859	\$2,528,799
Private-commercial/BCBS	\$40,524,535	\$13,890	\$6,385,123
Other Government	\$7,115,581	\$17,089	\$638,628
Medicare	\$27,208,603	\$23,808	\$3,569,580
Other	\$318,597	\$159,299	\$100
Workers Comp	\$105,134	\$44,056	\$32,411
Total	\$139,845,581	\$16,085	\$13,692,585